

The Emergence of Contemporary Portfolio Theory

Ron Surz, CFO Sortino Investment Analytics

- 65 years ago, in 1952, Dr. Harry Markowitz introduced [Modern Portfolio Theory \(MPT\)](#). It's hardly "Modern" today, but widely embraced.
- Then 26 years ago, in 1991, Dr. Frank Sortino created [Post Modern Portfolio Theory PMPT](#) . PMPT is used to manage to objectives.
- A new Contemporary Portfolio Theory (CPT) has been evolving over the past three decades.
- These three theories lead to materially different solutions, and therefore different client experiences and satisfaction.

65 years ago, in 1952, Dr. Harry Markowitz introduced [Modern Portfolio Theory \(MPT\)](#) that uses diversification to achieve the best expected return for a given level of risk, where risk is defined as return volatility. Then 26 years ago, in 1991, Dr. Frank Sortino created [Post Modern Portfolio Theory PMPT](#) that redefines risk as the possibility of failing to achieve objectives. More recently, a new Contemporary Portfolio Theory (CPT) has emerged that seeks to protect against failure even if it means jeopardizing upside potential.

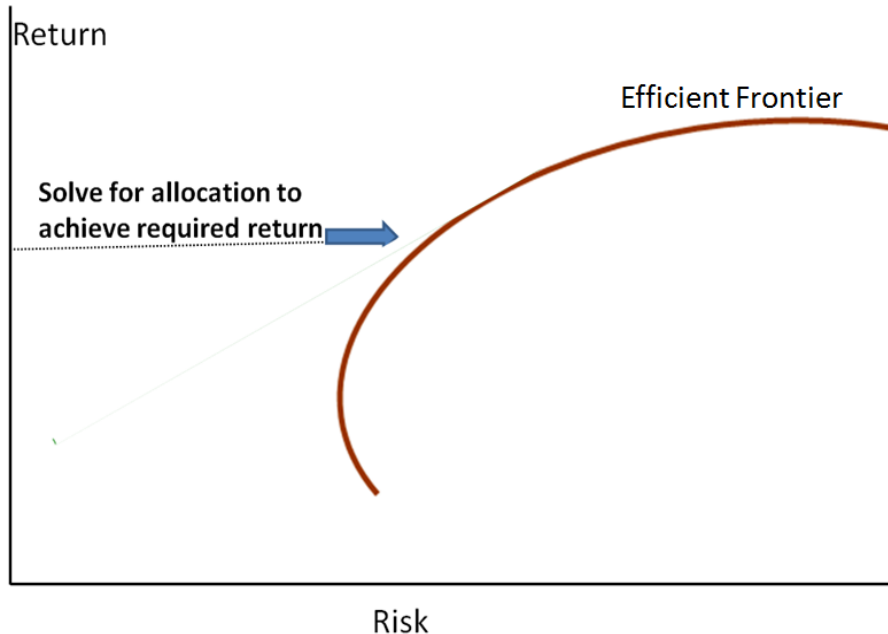
Most financial advisors help clients accomplish their financial goals by finding a suitable asset mix. This mix can vary widely depending on the theory that is used. Bear in mind that [asset allocation explains 100% of investment performance](#).

Modern Portfolio Theory (MPT) was introduced in 1952

Common portfolio construction evolves from a 2-step process:

1. Translate client objectives into an [Essential Return Objective \(ERO\)](#) that brings current assets plus future cash flows in line with a desired terminal wealth.

2. Use MPT to “locate” the “right” asset mix on the efficient frontier, as shown in the following graph. This solution produces the lowest risk asset mix for a given expected return.



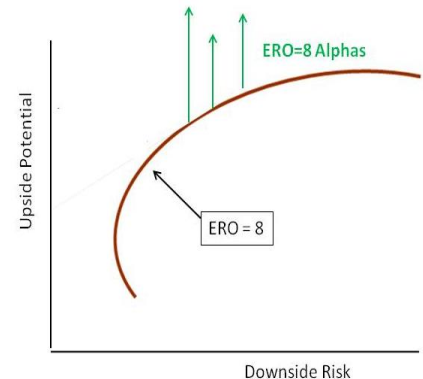
Note that risk in an MPT world is defined as volatility, or standard deviation, and is independent of the ERO. Volatility is the same regardless of the ERO. MPT assumes every investor thinks and acts the same in equilibrium so one efficient frontier fits all.

Enter Post Modern Portfolio Theory PMPT in 1991

A newer “modern” day approach has been developed by Dr. Frank Sortino. Post Modern Portfolio Theory (PMPT) views risk as the possibility of failing to achieve an objective. Risk in a PMPT world is ERO-specific. For example, if we need to earn 8% to achieve our goals, cash is a high risk asset because we’re not going to succeed with cash. By contrast cash is always low risk in an MPT world.

PMPT's asset mix solution is different than MPT's and different for each ERO. PMPT can improve the odds of achieving the ERO while simultaneously reducing the degree of potential disappointment: Better upside potential for the downside risk.

1. For each objective and associated ERO, measure reward as the potential to exceed the ERO, and risk as volatility below the ERO. Using the [Surz indexes](#) (mutually exclusive and exhaustive), generate a passive efficient frontier for each ERO that maximizes the potential to exceed the ERO relative to the downside risk of falling below the ERO. A ERO 8 efficient frontier is shown in the graph on the right.
2. Superimpose on that efficient frontier, all the possible combinations of active managers and passive indexes that will exactly fill the allocations to each asset category and provide a higher return adjusted for downside risk (arrows above the efficient frontier). Choose the portfolio with the highest arrow. This is the upside potential ratio framework.



Then after establishing an asset mix, track progress toward achieving objectives, and adjust as necessary. Evaluate the client's performance relative to the ERO.

Contemporary Portfolio Theory (CPT) is Evolving

Fueled by behavioral science, CPT will sacrifice expected return to protect against losses because [investors hate loss more than they enjoy gain](#) – it's asymmetric. CPT manages downside risk by overlaying portfolio insurance on an asset mix, and comes in various forms:

Versions of CPT

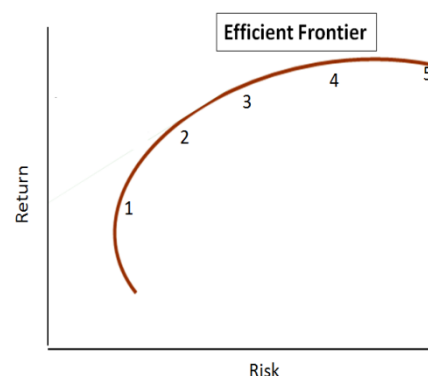
- Using derivatives, namely buying puts and/or selling calls
- Tail risk management
- Market timing, under a variety of names like “tactical” or “rotation”
- Dynamic asset allocation

Here’s an example of Dynamic Asset Allocation:



Each asset class in a multi-asset portfolio is analyzed separately and allocations are modified. Cash is used as a safety valve.

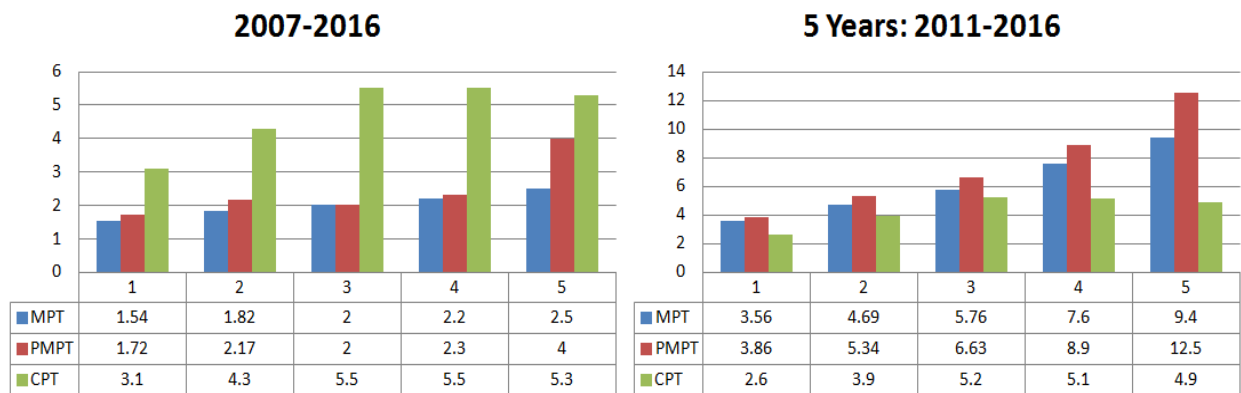
Like any other insurance, CPT risk protection comes at a cost. This cost is manifest when insurance is not needed, namely in rising markets. The following exhibits make the point. We’ve backtested 5 asset mixes that range from low risk to high risk as shown in the graph on the right, and measured performance and risk of three implementations:



- MPT uses all passive investments
- PMPT uses a mix of active and passive
- CPT overlays dynamic asset allocation on the PMPT portfolios

The backtests are for January 2007 to September, 2016. Results are hypothetical and intended to identify return behavior in general; returns should not be viewed as precise, but directions and magnitudes are indicative of theory behavior.

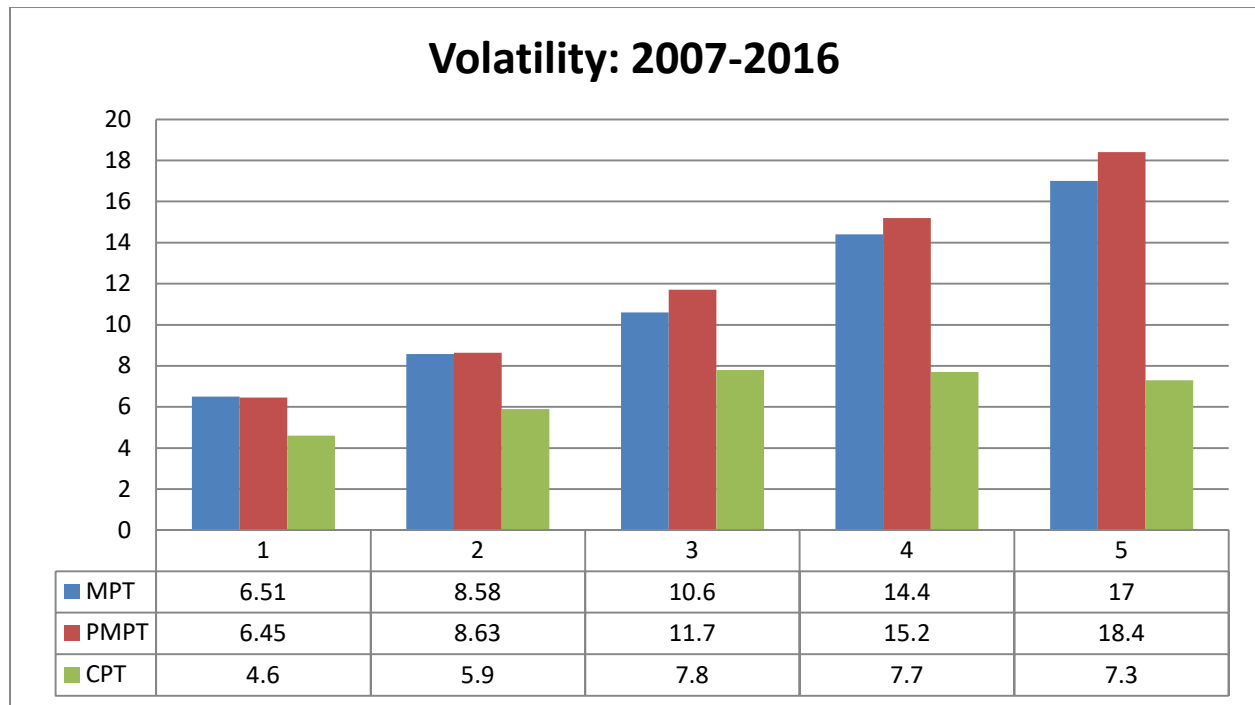
Backtested Return Behavior



Here are some observations about return behavior:

- Confirming the importance of asset allocation, the MPT and PMPT results are quite similar. Asset allocations are the same for these 2 backtests. The only difference is the use of active managers in the PMPT framework, integrated with passive indexes.
- Active managers in the PMPT results add value, especially for higher risk portfolios.
- CPT adds a lot of value in the 2007-2016 timeframe because it succeeded to defend in 2008, again confirming the importance of asset allocation.
- CPT “fails” in the most recent 5 years, 2011-2016. Such is the case in rising equity markets because insurance is a drag on performance. This is part of the cost of insurance, in addition to management fees. The version of CPT we’ve used “pumps the brakes” most of the time in the form of cash, although it varies through time. Because of this underperformance, CPT managers have lost accounts in the recent stock market run-up.

We've also examined the risk embodied in the three theories, as shown in the following graph. We measure risk as standard deviation, and acknowledge that a better measure would be downside risk, especially for PMPT and CPT.



As you can see, the risks for MPT and PMPT are about the same but, no surprise, CPT risk is substantially lower, making the Sharpe Ratio of CPT reward -to-risk very high. CPT produces very good risk-adjusted performance.

Conclusion

Most of us anticipate painful consequences from quantitative easing and our ginormous debt, so we're looking for ways to protect. CPT offers such protection but, like anything else, some CPT managers are better than others. We demonstrate in our backtest of one such CPT manager that the costs of CPT go beyond management fees and include opportunity costs in rising markets. The good news for CPT is that the reward-to-risk ratios remain high.